



## Journal of Arts, Humanities and Social Science (JAHSS)

ISSN: 3006-9491 (Online)

Volume 2 Issue 3, (2025)

 <https://doi.org/10.69739/jahss.v2i3.1248>

 <https://journals.stecab.com/jahss>



Published by  
Stecab Publishing

### Research Article

## Community-Based Natural Resource (CBNRM) Management Approach as a Tool for Sustainable Resource Preservation: Lessons from Jozani Forest, Zanzibar

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### About Article

#### Article History

Submission: October 26, 2025

Acceptance : November 30, 2025

Publication : December 22, 2025

#### Keywords

*Community-Based Natural Resources Management, Jozani, Forest, Sustainable Resource Preservation, Zanzibar*

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### ABSTRACT

Community-Based Natural Resource Management (CBNRM) has become one the important strategy used for harmonising conservation of natural resources with community development; however, its success is primarily dependent on the quality governance, community engagement, and sharing benefits with the surround communities. Through a qualitative thematic analysis of interviews, field observations and policy documents, this study examines how CBNRM functions in Zanzibar's Jozani-Chwaka Bay area. The findings show that participatory governance structures, gender-balanced representation, and collaborative partnerships enhance local ownership of conservation, while revenue sharing and livelihood diversification strengthen community support for protected areas. However, accountability gaps, misuse of funds, and land-use conflicts undermine legitimacy and threaten sustained community participation. The study concludes that CBNRM in Zanzibar can achieve long-term ecological and social benefits when empowered participatory governance is accompanied by strong accountability mechanisms and transparent benefit-sharing systems. The article advances scholarship by providing an integrated framework that demonstrates how governance legitimacy not merely institutional presence determines the sustainability of CBNRM in tourism-driven coastal contexts.

### Citation Style:

Said, H. K. (2025). Community-Based Natural Resource (CBNRM) Management Approach as a Tool for Sustainable Resource Preservation: Lessons from Jozani Forest, Zanzibar. *Journal of Arts, Humanities and Social Science*, 2(3), 210-222. <https://doi.org/10.69739/jahss.v2i3.1248>



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## 1. INTRODUCTION

The increasing pressure from population growth is linked to the endangered of the forest ecosystem. This is due to the fact that the population growth has increased the needs for agricultural activities, and unsustainable exploitation of the resources (Cassidy *et al.*, 2023). Responding to that, there is a shift from relying on the state control of the natural resources to community participatory models to ensure the proper management and strengthening the protection of natural resources (Foyet, 2023).

Increasingly, community-based natural resources management (CBNRM) has been adopted and used as a strategy to ease resource tension between conservation authorities and the surrounding communities (Kachali *et al.*, 2024). Arguably, local ownership of the resources as well their participation in preserving those resources is paramount (Agyare *et al.*, 2024).

While global pressure on the importance of CBNRM is increasing, the evidence that its outcomes can be generalized at a global context is still remain answered (Nelson & Sandbrook, 2009). In most parts of Africa, several studies unveil both benefits and challenges of CBNRM suggesting that CBNRM have the potential to improve not only the forest reserve, but also, governance and social welfare of the surrounding communities. However, there is a possibility that can trigger corruption, and resource – based conflict (Williams, 2017). However, relatively less effort is directed to small island nations where conservation is linked to tourism, marine reserves and even cultural settings. Zanzibar being part of the world, does not waive form experiencing the same scenario that the other part of the world is experiencing in preserving natural resources (Mmbaga *et al.*, 2024; Pailler *et al.*, 2015). Jozani Forest in Zanzibar is one of the important icons for biodiversity, which is the home and source of livelihood for vast creatures. To ensure the sustainable use of the natural resources, the Jozani-Chwaka Bay Conservation Project introduced a participatory approach to integrate the local communities in managing the forest, as well as sharing the benefits that come from the forest (Hamad, 2013).

Although the CBNRM approach at Jozani is by far viewed as a good and proper model, there is limited empirical evidence that explain its long-term ecological and socio-economic impacts (Hamad, 2013; Mmbaga *et al.*, 2024). As such, understanding community perception on their roles and how they implement is important for the impactful conservation initiatives that can be applied to other similar places within and outside Zanzibar. Zanzibar in particular the Jozani Chwaka Bay Reserve is an ideal place for such exploration. The park is a rich natural and a home of several biodiversity that offers unique species such as red colobus monkey. The place has become a lesson learned for community based natural resources management, that is used as one of the tourist's attraction sites in Zanzibar. Sharing revenue between government and local communities has become one of the interesting parts of this park (Carius & Job, 2019). The introduction of Blue Economy in Zanzibar has increased pressure on Jozani – Chwaka Bay Reserve due to the fact that, the blue Economy agenda prioritizes on sustainability operation in all aspects of tourism (Zanzibar Blue Economy Policy, 2022).

Despite the tremendous job that has been done in Jozani and

Tanzania (Bay *et al.*, 2011), generally, there is a need to explore the integrated model that can combine several dimensions for long-term sustainability and trust building on CBNRM. In that juncture, this study is guided by the following central research question.

How do governance structures, community engagement, livelihood initiatives and accountability mechanisms influence the success and sustainability of Community-Based Natural Resource Management (CBNRM) in Zanzibar's Jozani – Chwaka Bay area?

The results of this paper contribute to the growing discourse of the literature on community-based natural resources in small island contexts. Moreover, the results offer insightful and informative decision-making for policy purposes in sustainable resource management, and provide the CBNRM framework that links institutional governance, benefit-sharing, cultural and social dynamics, environmental stewardship.

## 2. LITERATURE REVIEW

### 2.1. Community-based natural resource management (CBNRM)

Community-Based Natural Resource Management (CBNRM) is a framework that is used to balance between the conserver and community by creating mutual relations between the two (Snorek & Bolger, 2022). CBNRM brings the two parties together in which community is given the chance to participate in designing the structures, rules, and all matters pertaining to the administration of the resources. It well agreed that that CBNRM is one of the best strategies of biodiversity conservation and resource management that considers the equitable use of resources by community (Pailler *et al.*, 2015).

The CBNRM model as argued by Berkes (2004) has evolved from the simplicity of community-centered approach where biodiversity conservation was viewed as combining the combination of protection and community participation that further their livelihood. Berkes (2004) has further stated that CBNRM must be viewed as a multi-level process in which it should integrates the local community to a wider institutional frameworks that extends to local stakeholders such as NGOs and even international institutions.

Scholars have pessimistically highlighted the benefits gained from practising Community-Based Natural Resources Management, for example, Ali *et al.*, (2025) argue that, a number of positive impacts are associated with the CBNRM such as livelihood & poverty reduction, social empowerment, economic & industrial sustainability, and environmental conservation. Likewise, Munalula *et al.* (2020) emphasized that CBNRM has several advantages ranging from combining conservation and development which ultimately lead to motivation in sustainable resource management. Additionally, CBNRM creates employment, generating income, decentralizing some of the authorities to community, instilling community accountability and responsible conservation, improvement in service provision by local investors, avoiding illegal activities that could possibly be conducted by locals if they were not involved in conservation, and capacity enhancement to locals in matters pertaining to environmental conservation (Melinda *et al.*, 2020).



Apart from having several benefits, scholars have mentioned some challenges that are associated with CBNRM. For instance, Shereni and Saarinen (2021) argue that communities are insufficiently involved in either managing or making decisions about resources. Not only that, but also it happens sometimes wild animals cause destruction to agriculture, and even to livestock. There is also reluctance in giving authority to communities, low realization of tangible benefits, and even some conflicts over resources.

Moreover, Melinda *et al.* (2020) address among the challenges that CBNRM pose are reluctance of the community to volunteer themselves in participating in conservation initiatives. Also, insufficient management and technical skills that could fluently be used in planning and managing projects. Sometimes increasing cost and taking longer time to reach to decision due to the presence of many community members.

Notably, community-based natural resource management is the way to sustainable natural resources management. Therefore, it is necessary to empower communities so that they can be able to take advantage of CBNRM which ultimately leads to sustainable natural resources management.

## 2.2. Sustainable natural resources management (SNRM)

Sustainable Natural Resources Management is the way of utilizing of natural resources in a balance way between present and future. It includes pulling up together the ecological, economic and social factors for the purpose of maintaining the equilibrium between ecosystem and productivity (Koval *et al.*, 2021).

Sustainable Natural Resources Management is not only viewed as a holistic approach to make the better use of natural resource, but it is regarded as interdisciplinary framework that cut across entire natural resources (Abrehe *et al.*, 2021; Koval *et al.*, 2021; Litvinenko *et al.*, 2022; Silva, 2025). Broadly, Koval *et al.* (2021) and Litvinenko *et al.* (2022) hint that SNRM encompasses of five dimensions namely, Environmental, Economic, Social, Governance, and Technological.

Several scholars have discussed the benefits that Sustainable Natural Resources Management offers, for instance Obiorah *et al.* (2025) argue that SNRM provides environmental sustainability by preserving biodiversity and enhancing soil fertility. They further suggest that SNRM protect the ecosystem while minimizing the rate of pollution and land degradation. To further the discussion on the benefits of the SNRM, Coria and Sterner (2011) provide that SNRM enhances the economic development of the area owing to the efficient utilization of the resources. Moreover, in practicing SNRM there is an improvement in social equity in which the community participates in several activities related to SNRM such as equitable benefit sharing, controlling resource conflicts, and increasing social cohesion (Aunty, 2003).

However, SNRM like other resource sharing approaches is not out of the question. There are several challenges that scholars have identified, such as Governance Failures, Economic Pressures, Technological & Data Limitations, Social Challenges, Environmental Degradation, and Policy & Implementation Gaps (Aunty, 2003; Government, 2018; Litvinenko *et al.*, 2022).

## 2.3. Critical synthesis and research gap.

Notwithstanding the notable job of researchers on Community-Based Natural Resources Management (CBNRM) in Africa and Tanzania in particular, still there is no consensus on treating CBNRM as mutual socio-economic and political context that touch both interests of government and communities around conservation areas.

There is one eyed perspective when looking at CBNRM, most of the researchers treat CBNRM as a means of enhancing conservation, improving livelihoods, and propelling rural development (Lepper *et al.*, 2010), while recently there has been discussions about potential challenges related to corruptions, poor institutional arrangements, and inequitable benefit-sharing (Bamidele & Sennuga, 2025).

Locally, much of the literature has focused on examining co-management of marine and forest, and coastal governance, as well as benefit-sharing, in various conservation sites. Moreover, the empirical findings particularly in Zanzibar show both positive ecological outcomes and governance struggles, while portraying the interplay between authority and community participation (Bay *et al.*, 2011).

Nevertheless, the reviewed studies are largely based on either conservation mechanisms or livelihoods benefits of the communities, depriving the other side of the coin which focuses on integrating several socio-economic factors. Currently, issues such as governance and accountability, cultural identity, gender inclusion, and emerging technology are at the centre of discussion to see how they integrate into a single framework. Especially concentration on digital governance and ICT-enabled participation in natural resources management has scarcely been examined (Zhang & Cao, 2025).

Against such backdrop, this article aims at proposing an integrated framework of CBNRM in Jozani – Zanzibar that fit in institutional governance, accountability, livelihood diversification, cultural heritage, youth engagement, and environmental stewardship. Consequently, this current study add to the existing body of knowledge in three main ways: (i) it deepens understanding of how empowered participatory governance and co-management operate in practice under various pressures; (ii) it foregrounds accountability and transparency, often under-theorized dimensions in CBNRM studies as central to the legitimacy and long-term sustainability of community-based conservation; and (iii) it highlights emerging opportunities around digitalization, climate-smart initiatives, and youth entrepreneurship as critical, yet understudied, frontiers for the future of CBNRM in Zanzibar and comparable coastal contexts.

## 3. METHODOLOGY

### 3.1. Data collection and research methods

Data collection was done from three different villages that surrounding the Jozani Forest as well as from the Jozani Forest itself. Also, the department of environment was consulted. This study used qualitative research design to explore the advantages of CBNRM as a tool to sustainable resource preservation at Jozani Forest Zanzibar.

A total of seven in depth interviews, and two focus group discussion were conducted. The interviews were conducted



from the Minister responsible for tourism, from the heads of associations dealing with tourism activities, and from the department of environment. The list is as it is seen from the Table 1.

**Table 1.** Interviews

Responsible	Association
Acting Director	Zanzibar Association for Tourism Investors
Environment Officer 1	Department of environment
Environment Officer 2	Department of environment
Honorable Minister	Tourism and Antiquities
Assistant Chief Conservator	Jozani Forest Reserve
Secretary General	Zanzibar Tourists Guides Association
Secretary General	Zanzibar Association of Tour Operators

Focus group discussion were conducted from two different villages that surrounding the Jozani Forest Reserve which are PETE and KITOGANI. These villages were chosen because of their active participation in community base natural resource management through the Jozani Forest Reserve.

The researcher used an audio recorder to record interviews and focus group discussions. The audio recorder was used purposely to increase data quality and to influence participants' openness (Rutakumwa *et al.*, 2020). After that, the recorded were transcribed and listed corresponding to the respondents.

### 3.2. Data analysis method.

To identify, analyse, and interpret the patterns of meaning of gathered qualitative data of this current study, the researcher employed a thematic analysis approach. As Braun and Clarke, (2019), and Naeem *et al.* (2024) hint that thematic analysis provide flexible and systematic process in identifying, analyzing, and interpreting qualitative data. To reach the conclusion, the researcher went through six processes of thematic analysis namely, i) familiarization with data; ii) generating initial codes; iii) searching for themes; iv) reviewing themes; v) defining and naming themes; and vi) producing the report.

The aim was to get initial insight and contextualize the meaning of all transcriptions gathered that would lead to identifying codes. Then, to synthesize and simplify the codes, they were grouped and clustered based on their familiarity, however, the themes were then refined through comparison to get the final themes. After, the researcher defined the themes to keep clear thematic boundaries and scope. Finally, from the defined themes the researcher prepared a narrative supported by quotes.

## 4. RESULTS AND DISCUSSION

**Table 2.** Themes, Sub-themes, Illustrative Quote, and Implication

Theme	Sub-theme	Illustrative Quote / Source
Institutional Framework and Policy Environment	Environmental laws and policies	"Policies 2013 and Law 2015 are the tools we use in environmental management."
	Institutional coordination	"Before there was no good cooperation... now we do joint site verification with ZIPA and Department of Environment."
	Policy gaps on Blue Economy	"In policy, the Blue Economy is not mentioned."
	Environmental Impact Assessment (EIA)	"EIA is done for the protection of the environment and any project before it is done."
	Involvement in decision-making	"Each village brings two people, a woman and a man for an executive committee."
Community Participation and Empowerment	Benefit sharing	"50 to 50 for community development... some used for building schools and hospitals."
	Local committees (COFMA/JECA)	"Each village has an environmental conservation committee."
	Gender inclusion	"A woman and a man represent each village."
	Employment creation	"Many young people are getting jobs from foreigners who are coming."
Economic Benefits and Livelihood Diversification	Alternative livelihoods	"We are encouraging beekeeping, agriculture, and social tourism."
	CSR and community development	"Kizimkazi residents contribute good amount of money monthly to village committees."
	Forest and wildlife conservation	"The goal is to protect our natural resources... forest areas preserved by the government."





Environmental Conservation and Resource Protection	Waste and pollution management	"Hotels discharging wastewater destroy corals."
	Mangrove protection	"Deforestation is detrimental to the environment... visitors can bring bad feedback."
	Carrying capacity and visitor control	"Carrying capacity of the islands must be taken into consideration."
	Responsible tourism	"We encourage our members to ensure responsible tourism for marine life and biodiversity."
Ecotourism and Sustainable Tourism Practices	Eco-certification and standards	"We plan to develop standards with ZBS for protecting the environment."
	Local tourism promotion	"We plan to encourage local tourists to visit and spread conservation education."
	Fund management and misuse	"Villagers are wasting their money... hotels do not contribute equally."
Governance, Accountability, and Transparency	Conflict resolution	"Meetings are held for education and resolving challenges."
	Law enforcement	"If someone violates it, there is a penalty."
	Environmental education	"Environmental Education Unit provides awareness through radio, TV, and schools."
Education, Awareness, and Capacity Development	Training for youth and managers	"Training for tour operators and boat operators."
	Capacity building	"We visit to see what can be done to make a living—Charawe has been given money for lemon cultivation."
	Cultural identity and pride	"Weaving, cooking natural food, and traditional dances preserve our culture."
Cultural Heritage and Social Dimensions	Moral tensions	"Tourists dress in a way that is not customary... traditions are being ruined by tourism."
	Indigenous knowledge	"Traditional healers in caves... preserving local medicine practices."
	Land-use conflicts	"Villagers forcing access to forests... population growth increasing demand."
Challenges in CBNRM Implementation	Resource misuse	"Others use it for personal gain... no permits issued for activities."
	Financial constraints	"The reserve budget has not been approved... reception not possible."
	Limited monitoring	"We do monitor more than four times a year depending on resources."
	Multi-stakeholder collaboration	"Joint site verification with Department of Environment and ZIPA."
Collaborative Networks and Partnerships	NGO and private sector roles	"We partner with ZBS to develop eco-standards."
	Environmental audit	"Every five years there is an environmental audit."
Monitoring, Evaluation, and Sustainability	Internal monitoring	"Investors are compelled to do internal monitoring and annual reporting."
	Performance indicators	"We prepare a mitigation plan and monitor compliance."
	Digitalization and smart governance	"We proposed digital cards to track tourists and real-time tax collection."
Emerging Opportunities and Future Directions	Expansion to new areas	"Plans to open Pemba for sustainable tourism."
	Youth entrepreneurship	"We have 250 young members trained in tourism."
	Climate-smart initiatives	"Integration of ICZM and biodiversity finance projects."

#### 4.1. Discussion

This study explored the effect of community-based natural resource management as an effective tool for sustainable resource management in tourism reserves areas in Zanzibar. The findings revealed twelve themes which we have

synthesized into four interrelated themes: (i) institutional and governance frameworks, (ii) community empowerment and socioeconomic livelihoods, (iii) environmental stewardship and sustainability mechanisms, and (iv) capacity development and implementation challenges. Collectively, these findings shed

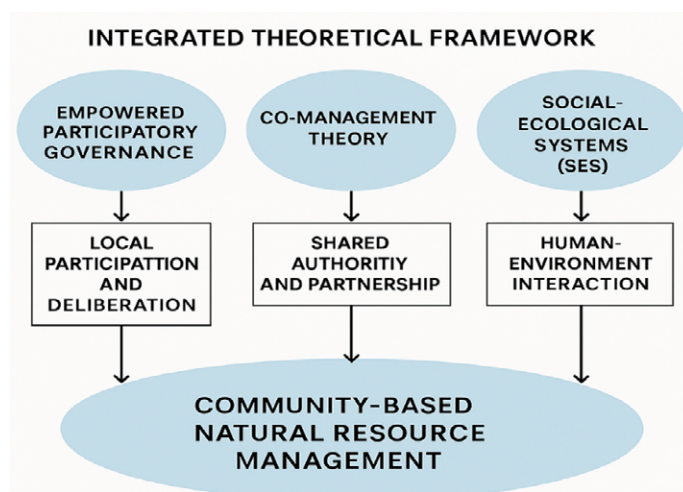


light on the underlying factors that translate the coexistence between the orthodox approaches of governance structures and modern preservation frameworks.

#### 4.2. Theoretical perspectives

This study is organised through three theories namely, empowered participatory governance (Fung & Wright, 2001), co-management theory (Borrini-feyerabend *et al.*, 2007), and Social-Ecological Systems (SES) (Ostrom, 2009). The uses of these theories provide a clear understanding of the modern approach of natural resource management that integrates between community and the state authority. For example, Borrini-feyerabend *et al.* (Borrini-feyerabend *et al.*, 2007) under the co-management theory prevail the importance of participating community in governance among of natural resources, that leads to necessary negotiations during any resource disputes. As such, community acquire really experience through learning-by-doing.

On the other note, Ostrom (2009) highlights that a multi-level framework that integrates resources systems, unity, governance, and users is a necessary for the effective natural resource management. This theory call upon human-environment interactions to better manage the natural resources. While, Fung and Wright (2001) show the importance of local participation and deliberation, while insisting that existence of empowered participatory governance improves transparency and responsibility. Figure 1 portrays the integration of the three theories that provides proposed theoretical framework of this study.



**Figure 1.** A Holistic Framework of CBNRM

#### 4.3. Institutional and governance frameworks

Under this theme there are three sub-themes which are institutional frameworks and policy environment, governance, accountability, and transparency, and collaborative networks and partnerships.

#### 4.4. Institutional frameworks and policy environment

It is important to have a formal structure that clearly identifies the boundaries and set principles for each player in the natural

resources management cycle. Complete machinery that defines the entire mechanisms that curate sustainable resources governance (Pero & Smith, 2016). Therefore, setting roles, laws and policies that govern effective operations of the conserved areas, as well as sensitizing partnerships with institutions and communities around is a way to facilitate transparency, and coordination among several organizations. The presence of that increases strong coordination and accountability which is the cornerstone of the sustainable CBNRM.

Institutional frameworks and policy environment have been found to have significant effects on the implementation of conservation areas. For example, during the interview it was highlighted that there are policies and laws used to manage environment to safeguard natural resources, as noted by the respondent "...policy of 2013 and law of 2015 are among the tools we use in environmental management."

Although there are several policies that govern environmental issues, there are still some weak implementations that need to be addressed for better resources management. for example, it narrated in the interview that some authorities are reluctant in implementing some of the policies and laws. Respondent hinted "...there are some policies and laws on tourism, but the implementation is still not to the satisfactory level."

Strong institutional coordination is one among the pillars of sustainable resources management. Responsible organizations must coordinate to ensure that natural resources are well preserved and utilized (Boonzaaier, 2012). Previously in Zanzibar there was no strong coordination among the responsible organizations, however at present it is acknowledged that the organizations are tightly working together to ensure that natural resources are well managed. The evidence is given during the interview that. One respondent claimed, "before there was no good collaboration... now we do joint site verification with Zanzibar Investment Promotion Agency (ZIPA) and the Zanzibar Environmental Management Authority (ZEMA)."

Before any investment or establishment takes place there should be verification process to determine their impact on the environment. This stage is crucial as it also assesses the efficiency of natural resources utilization which is the key aspect to sustainable natural resources management. Therefore, ZEMA coordinates with ZIPA to conduct physical verification, also ZEMA conducts Environmental Impact Assessment (EIA) to determine the viability of that particular investment. It is highlighted in the interview that, "...EIA is done for the protection of the environment and any project before it is done." Establishing strong legal basis for natural resources conservation as articulated by Boonzaaier (2012) is a primary goal, this could be well articulated through policy frameworks. However, effective implementation of such initiatives depends largely on having effective and multidisciplinary teams that include members from different organisations. In addition to that the issue of EIA being a centre of the stage to prevent environmental concern.

#### 4.5. Governance, accountability, and transparency

Conflicts are systematically resolved through scheduled meetings among community members. It is important to note that on the issue of resources from time to time there



is a possibility of conflicts arising, especially when people are involved in it (Bamidele & Sennuga, 2025). Hence, the management of any emergency of conflict should be well considered. The reflection of this scenario is well displayed through effective governance that shows accountability and transparency in its daily operation. It is highlighted in the interview that whenever there are any challenges or if there is a need to instill some education on certain matters, the meeting is convened. One respondent admits, “meetings are held for education and resolving challenges.”

Another key aspect to take care of the natural resources under the preserved area is law enforcement (Fabricius, 2014). Due to human nature of greed in natural resources utilisation, law and enforcement is a key to sustainable resource management. To cement its operationalization there should be punishment for those who breach the law. It is seen in the interview that the management has set punishment for the violators. Because laws and procedures of natural resources utilization and management have been well laid, so anyone who goes against it can suffer the consequences. One official claim “...if someone violates it, there is a penalty.”

Inclusive decision making, collaboration, and direct citizen engagement over public affairs has been clearly shown through this study. The results on Governance, Accountability, and Transparency show real commitment of the communities to natural resources. As pointed out “...if someone violates it, there is a penalty”. The communities appreciate their involvement and show that they have authority over their resources. Also, regular community meetings show the practice of governance, accountability, and transparency in which several social aspects of are discussed. For example, when it comes to conflict resolution or matters pertaining to education they meet and discuss, as explained in the interview that “...for education and resolving challenges we meet and discuss for decision making purpose”.

The fact that the surrounding communities have a system of representation is another evidence of governance, accountability and transparency shown in this study findings. It is narrated that “each village brings two people, a woman and a man”, these are among the members of the executive committee. Here it portrays the principle of power distribution, which is crucial for decision making, and the evidence that CBNRM considers governance legitimacy. This increases the community morale in protecting and complying with rules and regulations of CBNRM.

#### 4.6. Collaborative networks and partnerships

Fabricius (2014) hints the need of engaging a multi-stakeholder collaboration for efficiency in CBNRM. Several authorities and agencies partner together to ensure the sustainability of natural resources. We see the Zanzibar Environmental Management Authority and Zanzibar Investment Promotion Agency team up to ensure the compliance of environmental laws and regulations. This initiative is much needed to enhance natural resources preservation. It is narrated in the interview that, “Joint site verification with Zanzibar Environmental Management Authority (ZEMA) and Zanzibar Investment Promotion Agency (ZIPA).”

Likewise, the initiative is made to establish standards so that there will be objective decisions when it comes to any misconduct or violations of natural resources. It is clearly indicated the interview as quoted here. As hinted in the interview “We partner with ZBS to develop eco-standards.”

Effective management of conflicts and enforcement of rules and laws are systematically convened through the management of the Jozani Park and the surrounding communities. The meetings aim at promoting education, addressing any encounters. It also stresses the accountability of every member and imposing penalties if there are any rule violations.

#### 4.7. Community empowerment and socioeconomic livelihoods

##### Community Participation and Empowerment

Inclusivity and participation in decision-making is one among the crucial elements of the management of natural resources preservation. As it is highlighted in the interview that... “each village is represented by two members with equal gender to form the executive committees”

For that case, peoples’ morale and the sense of ownership increase, which in turn trigger citizenship behaviour and improve willingness to protect natural resources. Of course, there is a possibility of considering gender in setting priorities which then streamline the community-based natural resources approach.

The promotion of equity and sustainability within society is paramount to ensure social development. One respondent noted that “50 to 50 for community development... some used for building schools and hospitals.” This initiative considers the importance of reinvesting resources for the improvement of community welfare. Reciprocally, when community realizes that some benefits are directed to education and health infrastructure, the community increases their efforts to ensure the sustainability of natural resource management.

The presence of local institutional structure facilitates sustainable natural resources management. For example, the existence of Community Forest Management Areas (COFMA) and Jozani Environmental Conservation Association (JECA) have enhanced the coordination of efforts between communities and Jozani Forest Reserve. One respondent highlight that “Each village has an environmental conservation committee.” This shows that environmental conservation is deep rooted from the grassroot level where communities are willing to establish their institutional structures to ensure the sustainability of natural resources.

The local committees are responsible for supervising resource use, to ensure the compliance of conservation rules, and sensitization on the community projects. This is clear the decentralized model of governance to resources conservation. Ultimately, this initiative leads to increasing willingness and taking up responsibility by the communities.

Above all, it is strict that all surrounding communities adhere to gender inclusivity. Through representation and participation of various committees, gender is well addressed and considered. It is emphasized that, “A woman and a man represent each village.” It is evident that gender integration into all levels of planning and implementation is a symbol of seriousness to



social and livelihoods dimensions. This is crucial for the strong community and brings enormous contributions to natural resources management.

#### 4.8. Economic benefits and livelihood diversification

Community-Based Natural Resources Management provides tangible benefits and expanded local livelihoods, this is experienced through various economic activities that come from it (Mosimane & Silva, 2015). Community members cheer from this as reported that “many young people are getting jobs from foreigners who are coming.” Undoubtedly, the existence of those opportunities has sparked the local economy and reduced unemployment problems. Subsequently, it has increased the linkages between local communities and foreign investors which in turn increases the generation of income while conserving nature.

Alternative livelihoods are promoted to preserve nature; it is deliberately done to decrease dependence on natural resources use. As shared by one respondent, “we are encouraging beekeeping, agriculture, and social tourism.” Correspondingly, income generation is enhanced as well as reducing pressure on natural resources. The diversification of livelihoods sources strengthens communities’ resilience to environmental shortages and ensures sustainable economic development.

#### 4.9. Corporate social responsibility (CSR).

Communities are motivated through Corporate Social Responsibility (CSR), which necessitates the development of their villages (Sibanda, 2024). One respondent gives example of one Community in Kizimkazi that, “Kizimkazi community contribute a significant amount of money monthly to village committees.” This is the indication that it is possible to have co-finance of social infrastructure between resource-based enterprises and local communities. In that juncture, there the shared benefits of natural resources can improve living standards as well as enhance social cohesion.

#### 4.10. Cultural heritage and social dimensions

Osuagwu (2025) emphasizes that Community identity and pride are crucial to any society, hence, the cultural heritage and social dimensions of CBNRM are paramount. This is reflected in one of the respondent’s statements that, “Weaving, cooking natural food, and traditional dances preserve our culture.” It is equally important to link conservation to cultural endurance as it ensures the balance between social welfare and natural resources management (Mu *et al.*, 2025). For that reason, native knowledge plays significant role in sustaining ecological and cultural equilibrium. It is indeed emphasized by one respondent that “Traditional healers in caves... preserving local medicine practices.” This signifies that while considering sustainable use of resources and multigenerational transfer of cultural values, local wisdom has significant contribution to biodiversity conservation.

#### 4.11. Environmental stewardship and sustainability mechanisms

##### 4.11.1. Environmental conservation and resource protection

Community-based natural resources management

establishments exert many efforts to improve environmental conservation and resource protection (Melinda *et al.*, 2020). This is witnessed by one of the respondents as stated, “The goal is to protect our natural resources... forest areas preserved by the government.” The translation of this is that communities understand clearly that the existence of natural resources is a crucial factor in their livelihoods. Hence, it has become possible for communities to support government efforts to protect natural resources.

Although, the move is being tested by the emerging environmental challenges. For example, unmanaged waste disposal and pollution that are generated from tourism activities. It is claimed that “Hotels discharging wastewater destroy corals.” This brings alert to urgent environmental restoration and sustainable waste management.

Mangrove protection is one of the vital aspects of environmental protection, and communities take every possible effort to ensure that they protect them (Damastuti *et al.*, 2023). They state that “deforestation is detrimental to the environment... visitors can bring bad feedback.” This does not only deprive the natural environment but also ruins reputation of the communities. Cutting mangroves would weaken several aspects of communities’ livelihoods, such as coastal ability to regain natural resources, fisheries productivity, and even climate stress. Likewise, people are aware of the importance of proper management of resources especially when it comes to islands. One of the respondents acknowledge that, “Carrying capacity of the islands must be taken into consideration,” If the carrying capacity would not be controlled there is a possibility to degrade sensitive natural habitats, so lessen the quality of visitor experiences.

#### 4.12. Ecotourism and sustainable tourism practices

The conservation strategies nowadays consider the issue of ecotourism and sustainable tourism practices. Luo *et al.* (2020) hint that it is important to set mechanisms that promote community awareness in eco-friendly behaviour which is held responsible for both tourism and visitors. “We encourage our members to ensure responsible tourism for marine life and biodiversity,” noted one respondent. Furthermore, the aspect of cultural heritage has also been emphasized as one of crucial aspects in natural resources protection. It is advised that tourism should support local traditions rather than erode it. Here one respondent stresses that, “...we encourage traditional dance groups and local food preparation”.

On the other hand, setting standards has become new fashion, hence, institutional collaboration with regulatory authorities is an important forum toward sustainable natural resources management. This is highlighted by one respondent that, “we plan to develop standards with the Zanzibar Bureau of Standards (ZBS) for protecting the environment.” Having eco-certificate would accelerate sustainability standards and enhance accountability. Moreover, to spread awareness on natural resources conservation, there is a move to motivate local visitors to these community-based natural resources conservation areas. The respondent gives advise that, “we plan to encourage local tourists to visit and spread conservation education.” It is a way to build local stewardship and nurturing





a sense of shared responsibility in protecting natural resources and cultural heritage among the local community.

#### **4.13. Monitoring, evaluation, and sustainability mechanisms**

To ensure longevity and sustained adaptive management to natural resources management, the issue of monitoring, evaluation, and sustainability are at the forefront of the CBNRM. As one respondent explained that “there is a periodic environmental audit”. That effort signifies institutional commitment to natural resources management. Even investors are obliged to abide by the rules and regulations of natural resources preservation in which they must conduct periodic assessments, this is witnessed by one of the respondents that “investors are compelled to do internal monitoring and annual reporting.”. The outcome of these processes, informed decision-making and measurable indicators from periodic evaluation used in operational management. The officials in environmental management are working tirelessly to achieve continuous improvement in environmental protection. One of the officials as respondent mentioned, “We prepare a mitigation plan and monitor compliance”.

#### **4.14. Emerging opportunities and future directions**

Evolving prospects and imminent prosperous trajectory indicate a promising shift towards innovation (Harrison & Dzingirai, 2015). So much effort is directed towards digitalization of governance for efficiency and transparency in service delivery. One respondent revealed that, “We proposed digital cards to track tourists and real-time tax collection.”. To reduce pressure in one area by diversifying sites for sustainable tourism is one among the strategies to protect natural resources. The plan is underway to extend areas for tourists to visit and experience nature, “plans to open Pemba for sustainable tourism”. This is not the only initiative, but involving young people in natural resources management has also been regarded as an appropriate technique in CBNRM. It is elaborated that, “We have 250 young members trained in tourism.”. Engaging young people in conservation incidence is a double-edged sword that not only brings about job creation to the young but also instilling conservation minded entrepreneurs to the new generation. For example, it is noted in the interview that, “we have 250 young members trained in tourism.”

#### **4.15. Capacity development and implementation challenges**

##### **4.15.1. Education, awareness, and capacity development**

Education, awareness, and capacity enhancement are said to be critical aspects not only to community-based natural resources management, but also in promoting the sense of environmental stewardship to local community. Zanzibar Environmental Management Authority plays a crucial role in raising awareness and understanding about natural resources conservation. As one respondent noted, “The Environmental Education Unit provides awareness through radio, TV, and schools.” This aims at disseminating environmental knowledge to the entire public. Various stakeholders are trained on conserving natural resources, one participant explained, “Training for tour operators and boat operators,” here the training was to

enhance responsible tourism practices. Ultimately, the training increased the compliance with environmental practices as well as improved service quality and safety standards which then increased positive experiences with visitors.

Furthermore, sometimes there is a deliberate effort that is made through community-based initiatives to support practical livelihood programs. The aim is to reduce dependency on natural resources. For example, the respondent informs, “we visit to see what can be done to make a living .... Charawe has been given money for lemon cultivation.” For that reason, capacity-building interventions conservation can link with economic empowerment and yield substitute sources of income that do not endanger natural resources. As such, CBNRM is viewed as a stage for sustainable rural development.

#### **4.16. Challenges in CBNRM Implementation**

There are several issues that persistently hamper the effective implementation of CBNRM. Land use conflicts have become widely among the forefront challenges to CBNRM, one community leader noted, “Villagers forcing access to forests... population growth increasing demand.” Population is increasing, which also increases the demand for resources such as forest and marine resources. The tension exacerbates the difficulties in setting boundaries and enforces regulations. There is also resource misuse that for some reasons undermines protection efforts. Partly this occurs due to unaccountability and lack of enforcement mechanisms, as notified, “Others use it for personal gain... no permits issued for activities”.

##### **Financial constraints**

Financial liquidity is an important aspect in natural resources protection, when there are financial limitations that can pose a major obstacle. “The reserve budget has not been approved... reception not possible,” one respondent remarked. Some activities need finance so that they can be executed such as patrolling, maintenance, and education campaigns. Unless reliable financial resources are in place, many planned activities will not be realized, or even not sustainable.

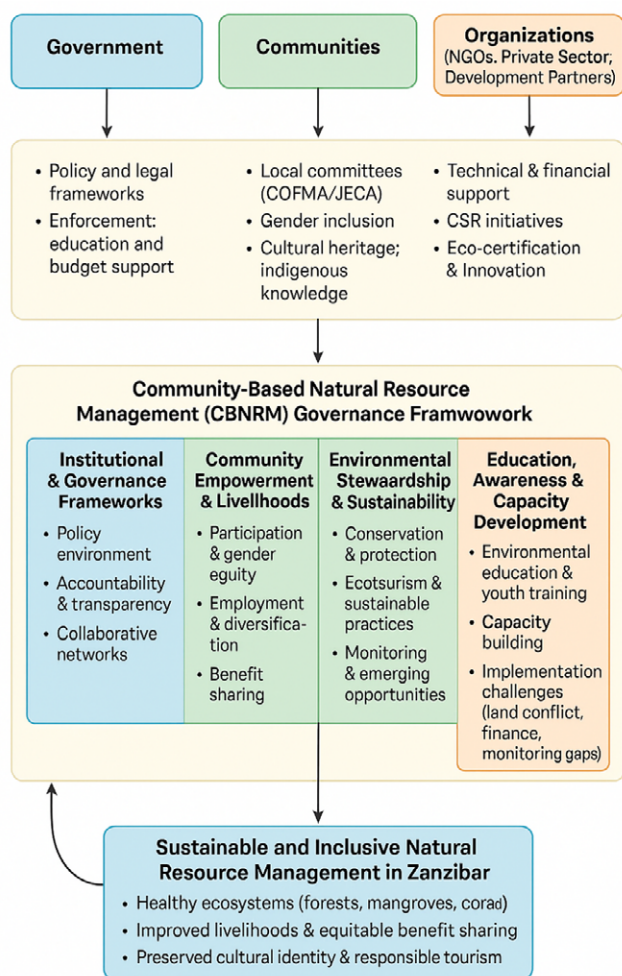
#### **4.17. Implications of the study findings**

This study on Community-Based Natural Resources Management (CBNRM) informs that the sustainability of natural resources relies on several factors, such as robust institutional frameworks, community involvement, environmental stewardship, and capacity enhancement.

Although the results provide promising future especially for the existence of strong community involvement and commitment to environmental protection, gender equality in decision-making, and the availability of alternative livelihoods strategies. Yet, there are some obstinate challenges that jeopardize the effective implementation of CBNRM. Such challenges are presumed to be weak law enforcement, land-use conflicts, and limited financial resources.

These implications are drawn from three key stakeholder groups, which are the government, local communities, and organizations (including NGOs, private enterprises, and development partners). We believe that these implications pave the way through which each actor can strengthen the impact, coordination, and sustainability of CBNRM initiatives in Zanzibar.





**Figure 2.** Conceptual framework

*i. Implications to the government:* The Government of Zanzibar through her Ministries has a central role in setting a conducive environment for effective CBNRM. The study findings underline the need to have strong institutions and policy enforcement mechanisms that will enhance the implementation of CBNRM in Zanzibar. Therefore, improving inter-agency cooperation and operationalization of conservation policies is important. Additionally, it is advisable to practice transparency and accountability in benefit-sharing. Hence, the idea of digital governance mechanisms, such as real-time tax collections and digital tourist tracking systems can enhance the accountability and improve revenue collection. Likewise, continuous mainstreaming of environmental education and awareness can increase community engagement to CBNRM. Sustainable financial resources are critical aspects of CBNRM, so government should set significant budget for natural resources conservation.

*ii. Implications to community:* Local communities are the cornerstone of CBNRM practices, they act in both ways, that is recipients and protectors of natural resources. The study highlights the involvement of the community members to decision making practices have enhanced participation and equity. It is advised that extension of these measures should be further reinforced especially to youths in planning and implementation to increase environmental stewardship

and capacity enhancement to young people for sustainable environment.

Community should reduce dependence on natural resources extraction; in so doing, community would practice sustainable resource management. Community needs to practice alternative livelihoods to lessen pressure on natural resources. In addition, local institutions have the responsibility to uplift the grassroots level and involve them in environmental practices.

### iii. Implications to organizations.

The issue of environment is not a specific person or organization concern; it is for everyone and every organization. Therefore, non-governmental organizations, private organizations, and development organizations are important actors in CBNRM. They can provide technical skills, financial, or other resources to facilitate the effective implementation of CBNRM. Through the aspect of CSR private sector can contribute to those village committees that supervise CBNRM establishments.

Development partners and NGOs on the other hand, can voluntarily empower young people especially in digital innovation, sustainable tourism, and conservation enterprises. This can have positive impact since it offers employment and instilling conservation mind to the young people. As a result, triggering sustainable CBNRM framework, and institutionalizing a multi-stakeholder model of governance which is important for transparency and adaptive learning.

However, the study findings on the misuse of funds shows that there is possible significant threat to sustainability of CBNRM. Generally, misuse of funds would jeopardize not only trust, but also collective motivation which is essential for the sustainability of CBNRM as it provides voluntary community stewardship of the Natural Resources. In the long run such mischievous behaviour would lead to multiple adverse results, such as attrition of social unity, diminishing of institutional legitimacy, distorted benefit sharing, and destroying the image of CBNRM.

### 4.18. Limitations and future research

Fundamentally, this study explores rich insights into the aspects of Community-Based Natural Resource Management (CBNRM) in Zanzibar, however, is not without limitations. This research relied solely on qualitative by conducting interviews pertaining to community perspectives, which, though rich in context, may be blind to quantitative scope of ecological outcomes or economic impacts across all regions. Additionally, the study focused on Jozani Reserved Park and two villages that surround the area. Possibly this has restricted the generality of the findings. To offset some of these limitations, future research should therefore adopt mixed method approaches and integrate the findings from ecological assessments, economic valuation, and participatory mapping to quantify the effectiveness of CBNRM interventions. Likewise, there is need to conduct a comparative study between Zanzibar's islands and other Islands or East African coastal regions to further enhance the understanding of contextual variations. To assess the influence of governance reforms, digital innovations, and climate-smart practices in the long-term sustainability and resilience of community-managed ecosystems applying longitudinal research would help to answer the underlying questions.



## 5. CONCLUSION

This current study explores the functions of Community-Based Natural Resource Management (CBNRM) within the socio-institutional context of Zanzibar. Positively, the findings shows that the prerequisite of the success of CBNRM is the strength of participatory governance structures, including diversified community livelihood development, community inclusive benefit-sharing mechanisms, and comprehensive integrated environmental stewardship. Moreover, it is revealed that other factors such as empowered local committees, gender-balanced representation, and institutional collaboration could enhance community ownership and accountability in natural resource protection. More often than that, emerging livelihood opportunities and responsible tourism also contribute to community resilience and wellbeing. On the other side of the coin, this study has shown some challenges that hamper full operationalisation of CBNRM in Zanzibar such as weak monitoring systems, limited financial resources, and land-use pressures.

At this juncture, this study's contribution is the development of a comprehensive conceptual framework that assimilates governance, socioeconomic, cultural, and environmental dimensions of CBNRM in Zanzibar. This framework advances in the current literature by manifesting the better way of which multiple stakeholders namely, grassroots institutions, state actors, and external partners collaboratively could forge a synergy on strengthening enforcement, capacity building, and innovation toward sustainable natural resource management. Conclusively, the study findings claim that there is a dire need for a coordinated efforts by various stakeholders, developing socioeconomic policy to empower the communities around the CBNR areas.

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